



Applying the knowledge triangle to food & nutritional care at hospital

Seminar on Methods of Knowledge Transfer towards Innovation

BRUSSELS, *November 17, 2014*

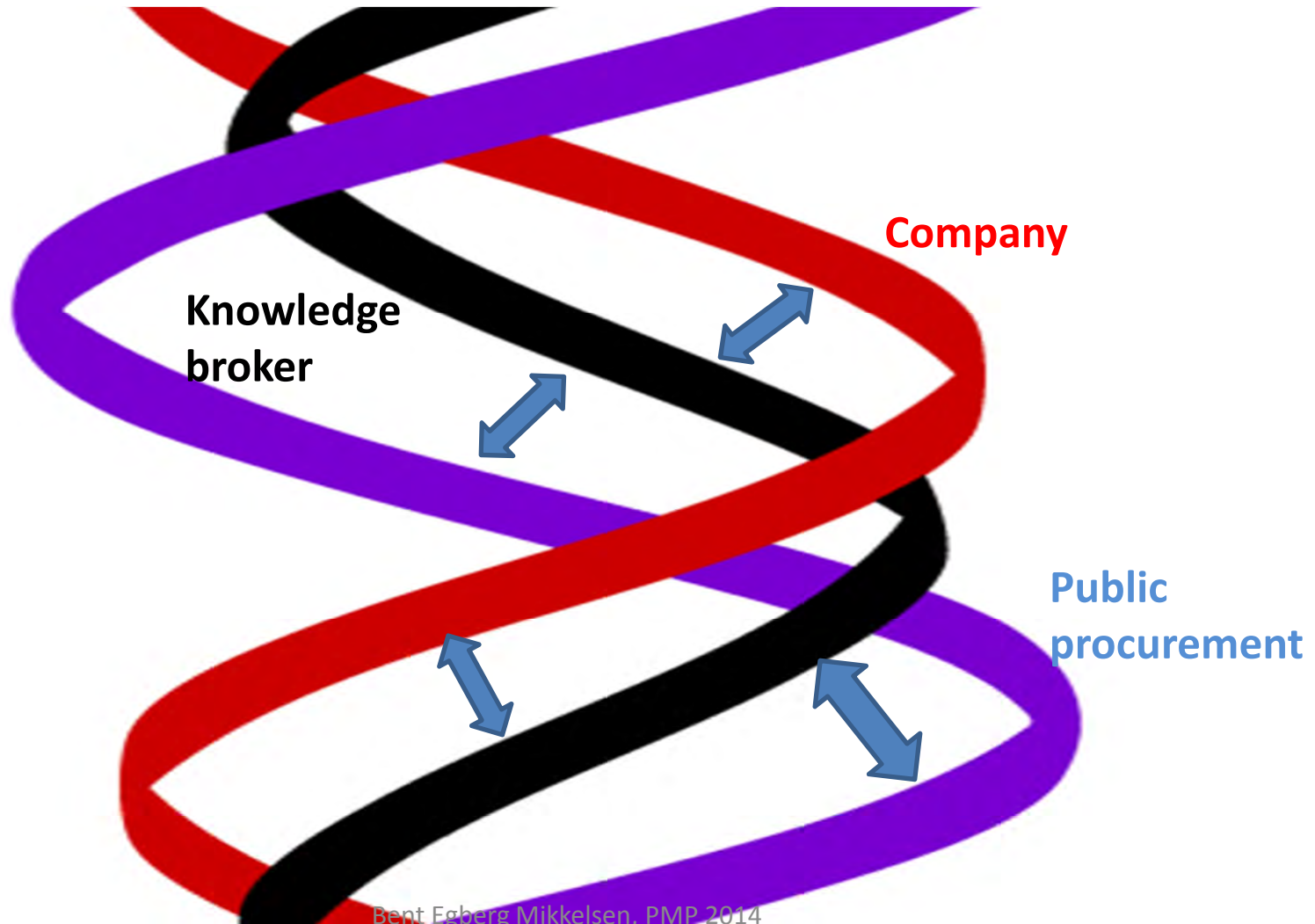
Bent Egberg Mikkelsen,

The Nordic Council of Ministers

Abstract: The double burden of disease where chronic diet related sicknesses coexist with undernutrition and infectious diseases has serious implications in both developed and developing economies. Both are faced with the consequences of modern sedentary lifestyle and this calls for new solutions. Both in China and in the Nordic countries the scientific community, private enterprises and the educational system are addressing these challenges through a new approaches to innovation governance. This paper reports on two examples of innovations in the field of new public health and builds on the insights from Food4Growth network program. The two cases are: 1. The dietary intake monitoring system (DIMS) and 2. the Data'n Devices (FoodTura) software development. It gives an account of how the 2 applications have been developed in cooperation between research, enterprise and education. It discusses some of the challenges related to partnership working and to converting and applying research findings and ideas for new intelligent devices in the food and nutrition area into commercial applications. It discusses how the partners have contributed to the progress of the innovation process. The network joins research groups from [Aalborg University Copenhagen](#) (AAU-CPH), [Center for Nutrition and Intestinal \(CET\)](#) from Aalborg University Hospital, [JAMK University of Applied Sciences](#), [University of Tromsø](#) and [Shanghai Fudan University](#) and the Huadong Fudan University Hospital as well as the Zhongshan Fudan Hospital. The network builds on the idea of new public health and takes food and nutritional care at hospitals and in the community as its point of departure. The network uses a three layered model as its conceptual foundation: the patient sphere, the hospital sphere and the community sphere. The network aims at contributing to setting out an agenda for a Nordic Chinese dialogue on the directions of the welfare system in relation to better food, healthier eating and nutritional care using a new public health approach. It aims at discussing what kind of dimensions of empowerment can be applied at the individual as well as on the collective level in relation to food and nutritional care at the hospital and in the surrounding community.



Helix or triangle?



Research

- Aalborg University Hospital
- Aalborg University Catering Unit



Enterprise

Syscore
Anova

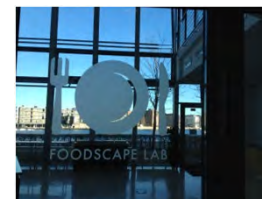


Education



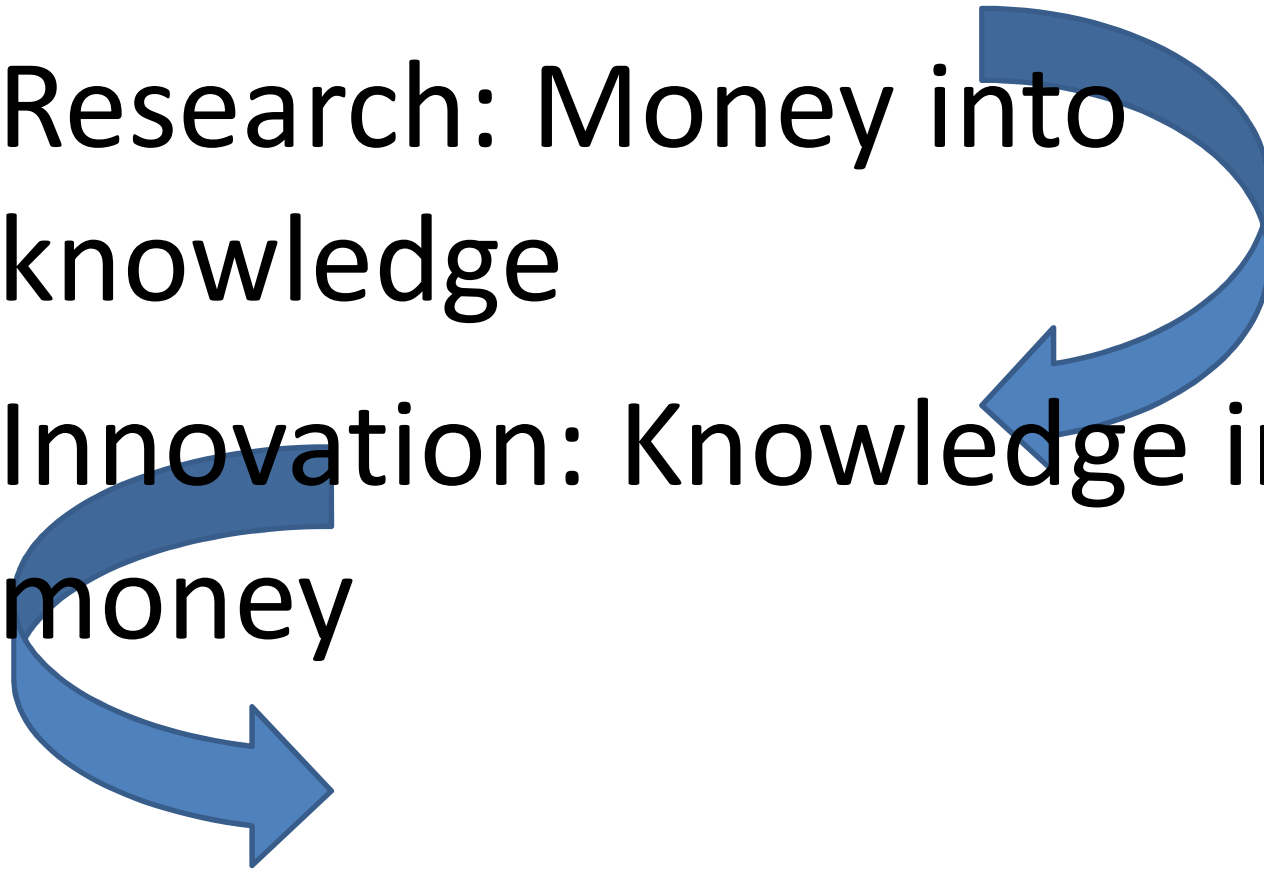
FOOD+DESIGN
Center for Food Science, Design and Experience

CET

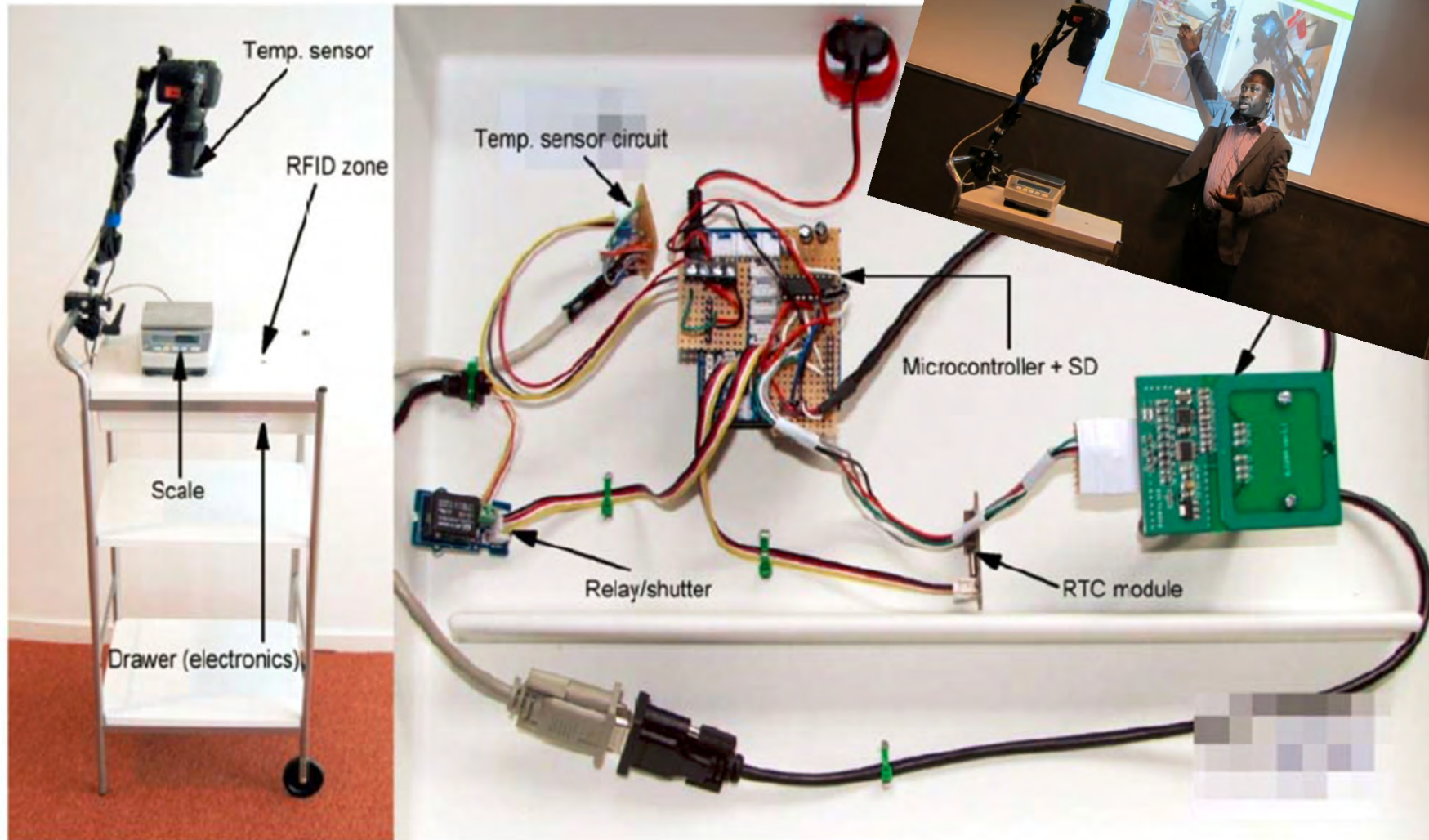


Two kinds of transformations

- Research: Money into knowledge
- Innovation: Knowledge into money



Description of Key Components of the DIMS



The Dietary Intake Monitoring System (DIMS) - an Innovative Device for Capturing Patient's Food Choice, Food Intake and Plate Waste in a Hospital Setting by [Kwabena Ofei, Michal Dobroczyński, Mette Holst, Henrik Rasmussen and Bent Egberg Mikkelsen](#). Proceedings of Measuring Behavior 2014, (Wageningen, The Netherlands, August 27-29, 2014). Editors: A.J. Spink, L.W.S. Loijens, M. Woloszynowska-Fraser & L.P.J.J.) Downloads: [conference slides](#) and [conference proceedings paper](#).

The task: Food intake and food waste

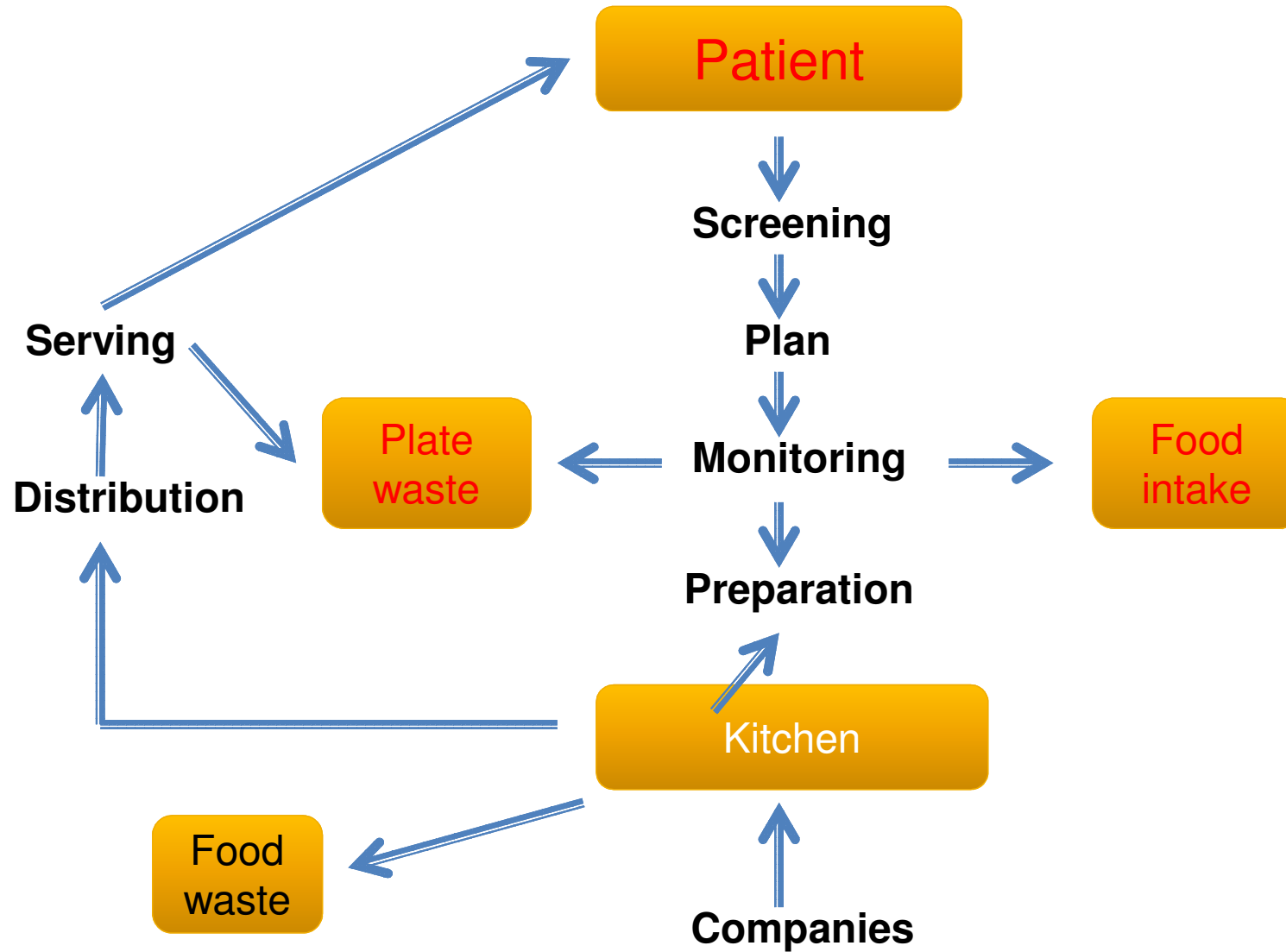
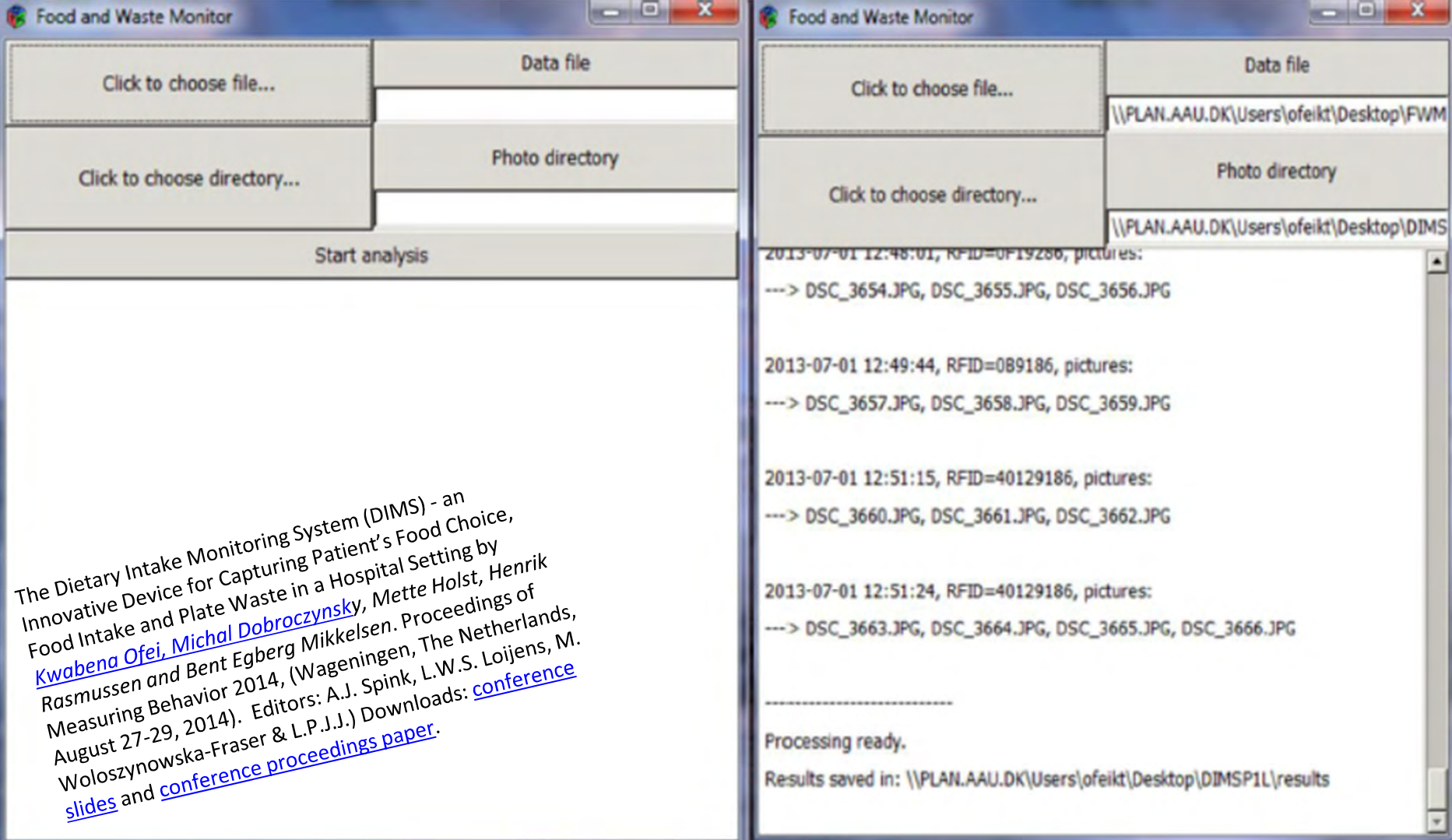


Plate Waste and Food Intake Analyser

5



The Dietary Intake Monitoring System (DIMS) - an Innovative Device for Capturing Patient's Food Choice, Food Intake and Plate Waste in a Hospital Setting by [Kwabena Ofei](#), [Michal Dobroczyński](#), [Mette Holst](#), [Henrik Rasmussen](#) and [Bent Egberg Mikkelsen](#). Proceedings of Measuring Behavior 2014, (Wageningen, The Netherlands, August 27-29, 2014). Editors: A.J. Spink, L.W.S. Loijens, M. Woloszynowska-Fraser & L.P.J.J.) Downloads: [conference slides](#) and [conference proceedings paper](#).

Food and Waste Monitor

Click to choose file... Data file

Click to choose directory... Photo directory

Start analysis

2013-07-01 12:48:01, RFID=0F19286, pictures:
 ---> DSC_3654.JPG, DSC_3655.JPG, DSC_3656.JPG

2013-07-01 12:49:44, RFID=089186, pictures:
 ---> DSC_3657.JPG, DSC_3658.JPG, DSC_3659.JPG

2013-07-01 12:51:15, RFID=40129186, pictures:
 ---> DSC_3660.JPG, DSC_3661.JPG, DSC_3662.JPG

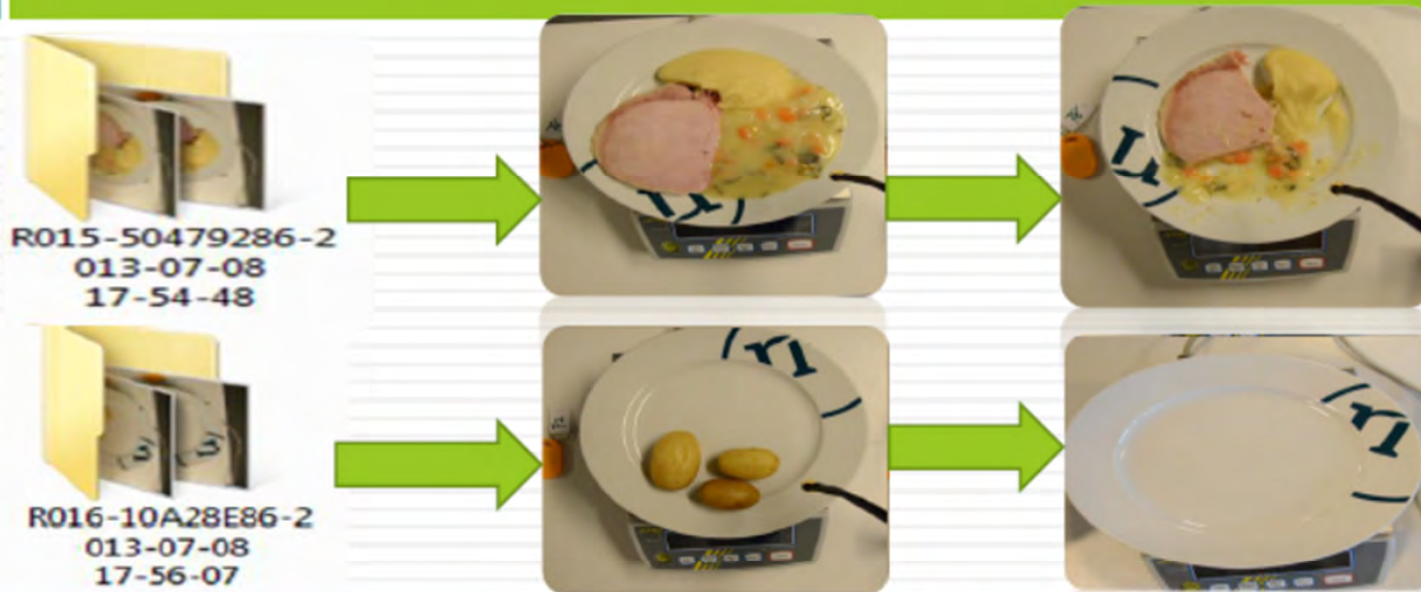
2013-07-01 12:51:24, RFID=40129186, pictures:
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Processing ready.

Results saved in: \\PLAN.AAU.DK\Users\ofeikt\Desktop\DIMSP1L\results

Patient Plate Waste and Food Intake from Trolley Food Serving

8



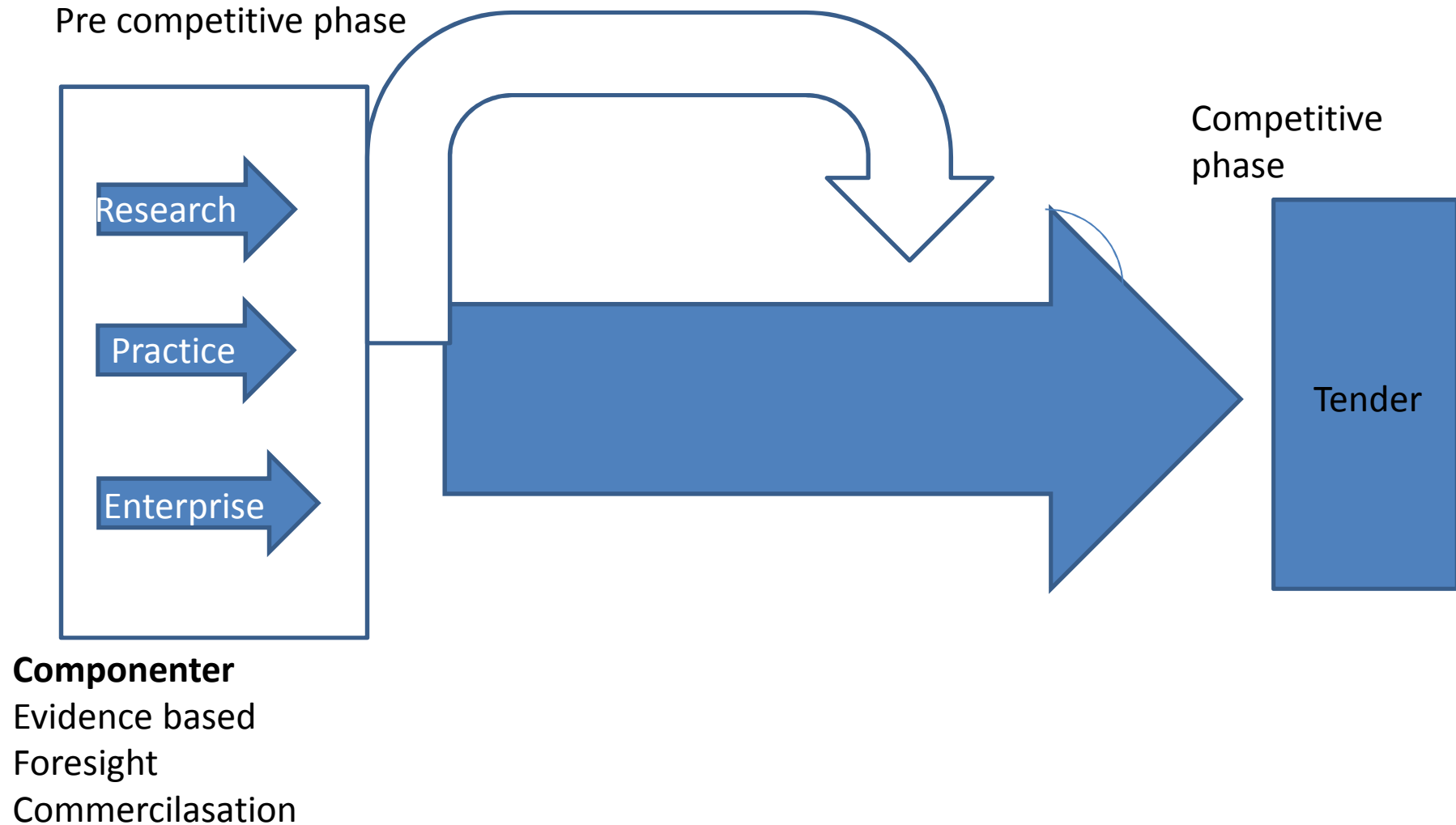
| Patient ID | Weight Before/g | Weight After/g | Food Intake/g | Plate waste/g |
|------------|-----------------|----------------|---------------|---------------|
| 50479286 | 638 -413= (225) | 532-413= (119) | 106 | 119 (52.89) |
| 10A28E86 | 502-413 = (89) | 413-413=(0) | 89 | 0 |

The Dietary Intake Monitoring System (DIMS) - an Innovative Device for Capturing Patient's Food Choice, Food Intake and Plate Waste in a Hospital Setting by [Kwabena Ofei](#), [Michal Dobroczyński](#), [Mette Holst](#), [Henrik Rasmussen](#) and [Bent Egberg Mikkelsen](#). Proceedings of Measuring Behavior 2014, (Wageningen, The Netherlands, August 27-29, 2014). Editors: A.J. Spink, L.W.S. Loijens, M. Woloszynowska-Fraser & L.P.J.J.) Downloads: [conference slides](#) and [conference proceedings paper](#).

The Fudan University Hospital case



The idea of the triple helix





Characteristics of the IFS Master

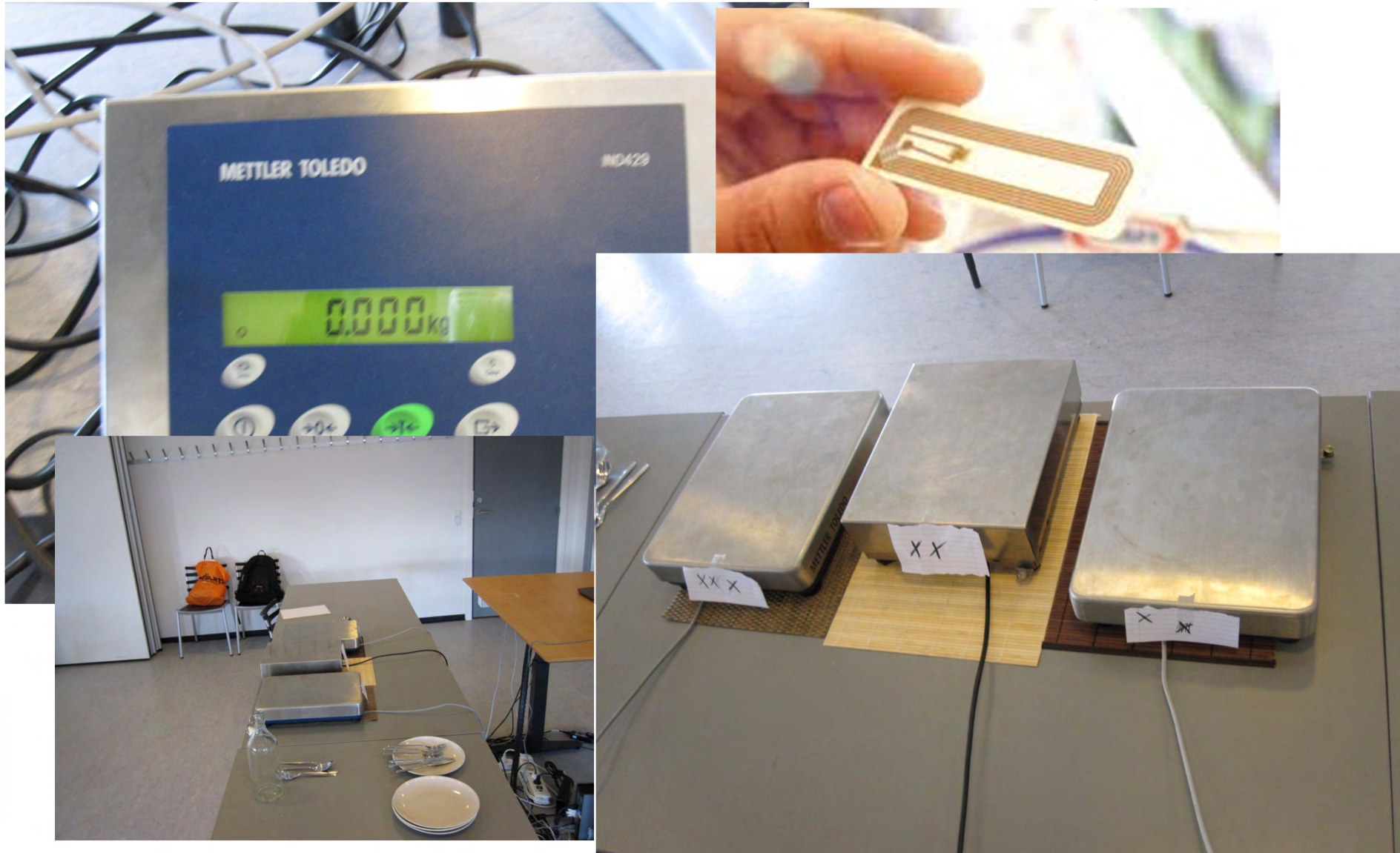
- Food Policy, Innovation and Networks
- Public Health Nutrition & Meal Science
- Design and Gastronomy
- University study in the center of Copenhagen
- 120 ECTS (2 years)
- English
- Full time study
- Semesters of ½ year (13 weeks +)
- 15 ECTS courses (3 x 5 ECTS);
- 15 ECTS projects each semester



Integrated Food Studies: www.ifs.aau.dk

Knowledge triangle

educational part is key





A snapshot of the virtual supermarket

Courtesy of: Dennis Godtfredsen, Philip Brisson, Martin Rene Andersen and Patrick Lehmann Hald, Project Group Create kl14r







Research2Innovation

Research

- Presenting at conferences
- Creating evidence
- Publishing papers
- Collecting research data & validate

Commercial

- Investigating practice use
- Exploring commercial potential
- Attracting capital
- Marketing

Conclusion

what can boost the kTriangle

- Entrepreneurship teaching
- Intra University Support
- Grant spotting and IP know how
- Intra University co-location
- Enterprise lecturing at educations
- Match making opportunities
- Enterprise assignments